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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,978	10/17/2001	J. Barry Shackleford	10019023-1	4384

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HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
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EXAMINER

BRODA, SAMUEL

ART UNIT PAPER NUMBER

2123

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/977,978	<b>Applicant(s)</b> SHACKLEFORD ET AL.	
	<b>Examiner</b> Samuel Broda	<b>Art Unit</b> 2123	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### **DETAILED ACTION**

1. Claims 1-29 have been examined.

#### ***Information Disclosure Statement***

2. Page 3 of the Specification describes prior art random number generation, with citation to papers by Wolfram and Hortensius et al, but these papers were not submitted using an Information Disclosure Statement.

Applicants are reminded of the duty under MPEP Paragraphs 2000.01 - 2022.05 to disclose any material prior art known at the time of filing. As the references listed above appear relevant to the claims, Applicants are requested to provide a copy of these references as part of any response to this Action.

#### ***Drawings***

3. Applicants' formal drawings have been reviewed and approved.

#### ***Specification***

4. The disclosure is objected to because of the following informalities: the references to related co-pending Applications are incomplete and require updating to reflect current application serial numbers and/or patent numbers. Additionally, references to attorney docket numbers should be removed.

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***Claim Rejections - 35 U.S.C. § 112, Second Paragraph***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.1 Claims 18-29 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are the computer hardware components necessary to operate the software “modules” to form the “system” of each claim.

***Claim Rejections - 35 U.S.C. § 101***

6. The following is a quotation of 35 U.S.C. 101:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6.1 Method claims 1-17 are rejected for reciting a process that is not directed to the technological arts. The language of each claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment, or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

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In each of claims 1-17, the method steps appear achievable by a person using mental steps or pencil and paper.

6.2 System claims 18-29 are rejected for reciting a machine that appears to be implemented in software alone, thus not being tangible and forming the basis of statutory subject matter under 35 U.S.C. 101.

In each of claims 18-29, the system is claimed in terms of “modules.” Absent the computer hardware necessary to operate the modules, the system claims appear incomplete and thus not tangible under Section 101.

***Claim Rejections - 35 U.S.C. § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

...

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7.1 Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Sipper et al, “Generating Parallel Random Number Generators By Cellular Programming,” International Journal of Modern Physics C, Vol. 7 No. 2, pp. 181-190 (1996).

7.2 Regarding claim 1, Sipper et al teaches a pseudo-code algorithm for random number generation by simulating cellular automata and its implementation in software. In

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particular, Sipper et al teaches a method to emulate a cellular automata based random number generator (CA-based RNG) in software, comprising:

determining emulation parameters for said CA-based RNG [emulation parameters corresponding to a rule 30 CA and the rules {90, 150}CA, page 6 paragraph 3];

initializing said software [initialization at top of pseudo-code algorithm, page 5];

simulating behaviors of cells of said CA-based RNG in parallel [simulation performed using public domain software written by Walker, page 6 footnote d]; and

outputting result of said simulating step [see page 7 Fig. 2].

Therefore, Sipper et al anticipates claim 1.

7.3 Regarding claims 2-4 and 6, each of these steps is inherent in the operation of the simulation software taught by Sipper et al.

7.4 Regarding claims 5, Sipper et al teaches the desirability of site spacing. See page 6 paragraph 3.

#### ***Allowable Subject Matter***

8. Claims 7-29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. {101, 112 second paragraph}, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure. Reference to Michalski, U. S. Patent 6,523,016 is cited as teaching a learnable evolution model.

Reference to Jennings, U. S. Patent 6,110,218 is cited as teaching generation of multiple simultaneous random test cycles.

Reference to Tomassini et al, "On the Generation of High-Quality Random Numbers by Two-Dimensional Cellular Automata," IEEE Transactions on Computers, Vol. 49 No. 10, pp. 1146-1151 (October 2000), is cited as teaching the generation of random numbers using cellular programming.

Reference to Eckart, "A Cellular Automata Simulation System: Version 2.0," ACM SIGPLAN Notices, Vol. 27 No. 8, pp. 99-106 (August 1992), is cited as teaching a software system for modeling cellular automata, including the generation of pseudo-random numbers for simulating gas diffusion.

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Samuel Broda, whose telephone number is (571) 272-3709. The Examiner can normally be reached on Mondays through Fridays from 8:00 AM – 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kevin Teska, can be reached at (571) 272-3716. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (571) 272-2100.

A handwritten signature in black ink, appearing to read 'S Broda', is centered on the page.

**SAMUEL BRODA, ESQ.**  
**PRIMARY EXAMINER**